

Electron paramagnetic resonance of Gd³⁺ ions in powders of LaF₃:Gd³⁺ nanocrystals

Gazizulina A., Alakshin E., Baibekov E., Gazizulin R., Zakharov M., Klochkov A., Korableva S., Tagirov M.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The observation of electron paramagnetic resonance of Gd³⁺ ions in nanosized powders of rare-earth fluorides LaF₃:Gd³⁺ has been reported. The measurements have been performed on a single crystal and microand nanosized powders at room temperature. Electron paramagnetic resonance spectra and spin-Hamiltonian parameters of Gd³⁺ ions have been obtained. A qualitative difference of spectra in nano-and micropowders due to the increase in the spread of the crystal field parameters with the decrease in the particle size has been found. The relationship between the single-crystal domain size and the hydrothermal treatment time has been established. © Pleiades Publishing, Ltd., 2014.

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